Water Use Efficiency Program

YEAR END REPORT

Santa Clara Valley Water District

FISCAL YEAR 2006-2007

Santa Clara Valley Water District

OUR MISSION

The mission of the District is a healthy, safe, and enhanced quality of living in Santa Clara County through watershed stewardship and comprehensive management of water resources in a practical, cost-effective, and environmentally sensitive manner.

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San Jose, CA 95118
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www.valleywater.org

ABOUT THE SANTA CLARA VALLEY WATER DISTRICT

The Santa Clara Valley Water District is the primary water resources agency for Santa Clara County, California. It acts not only as the county's water wholesaler, but also as its flood protection agency and is the steward for its streams and creeks, underground aquifers and District-built reservoirs.

As the county's water wholesaler, the District makes sure there is enough clean, safe water for homes and businesses. As the agency responsible for local flood protection, the District works diligently to protect Santa Clara Valley residents and businesses from the devastating effects of flooding.

Our stream stewardship responsibilities include creek restoration and wildlife habitat projects, pollution prevention efforts and a commitment to natural flood protection.

BOARD OF DIRECTORS

From left, Joe Judge, Richard Santos, Patrick Kwok, Sig Sanchez, Rosemary Kamei, Larry Wilson and Tony Estremera.

Rosemary Kamei	District 1
Joe Judge	District 2
Richard P. Santos	District 3
Larry Wilson	District 4
Patrick Kwok	District 5
Tony Estremera	At Large
Sig Sanchez	At Large

FROM THE OFFICE OF THE GENERAL MANAGER

Fiscal Year 06/07 was an important year for the District in several ways: it was the first dry year after many years of wet winters; and it was a year when the problems in the Sacramento-San Joaquin Delta were spotlighted. About half of Santa Clara County's water supply comes from sierra snow pack and runoff that flows through the Bay Delta. This year has brought into sharp focus the importance of water use efficiency (both water conservation and water recycling), as a key component of the District's strategy to meet short-term water supply challenges, such as dry years and reduced flow from the Bay Delta, and long-term water supply challenges, such as climate change.

The District's Water Use Efficiency Program, comprised of water recycling and water conservation, accounted for nearly 57,000 acre-feet (af) of water savings, supplying approximately 14 percent of the District's total water supply for this fiscal year, making it a key part of the District's water supply portfolio and an important part of the District's core business.

The District's sixth annual Water Use Efficiency (WUE) Program Year End Report for Fiscal Year (FY) 2006/07 highlights the steps the District has taken towards achieving the ambitious goals that have been set, both in terms of saving water and in terms of promoting innovative programs and research.

We are especially proud of our report, released this year, "Watts to Water: Climate Change Response through Saving Water, Saving Energy and Reducing Air Pollution" which quantifies the positive effects of the District's water conservation and water recycling programs on saving energy and reducing pollution. Research such as this, and the innovative programs designed to use water wisely described here, will surely help us meet the challenges of water supply and climate change in the future.

From the Office of the GM
Stanley M. Williams
General Manager
Santa Clara Valley Water District

WUE UNIT STAFF FOR FY 06/07

(Back row, from left): Stanley Zhu, Ray Wong, Catherine Cox, Kevin Galvin, Jeannine Larabee, Kurt Elvert, Bob Siegfried, Jerry De La Piedra.

(Front Row, from left): Rolando Gonzalez, Hossein Ashktorab, Toni Vye, Pam John, Karen Morvay.

WATER UTILITY ENTERPRISE:

Jim Fiedler Chief Operating Officer

WATER SUPPLY MANAGEMENT DIVISION:

Keith Whitman Deputy Operating Officer

WATER USE EFFICIENCY UNIT STAFF:

Hossein Ashktorab Unit Manager

Catherine Cox Water Conservation Specialist I

Jerry De La Piedra Senior Water Conservation Specialist

Kurt Elvert Water Conservation Specialist I

Kevin Galvin Water Conservation Specialist II

Rolando Gonzalez Public Information Representative I

Pam John Senior Civil Engineer

Jeannine Larabee Water Conservation Specialist II

Karen Morvay Water Conservation Specialist II

Alice Ringer Program Administrator

Robert Siegfried Assistant Civil Engineer II (Agricultural)

Toni Vye Senior Office Specialist

Ray Wong Associate Engineer (Civil)

Stanley Zhu Senior Civil Engineer

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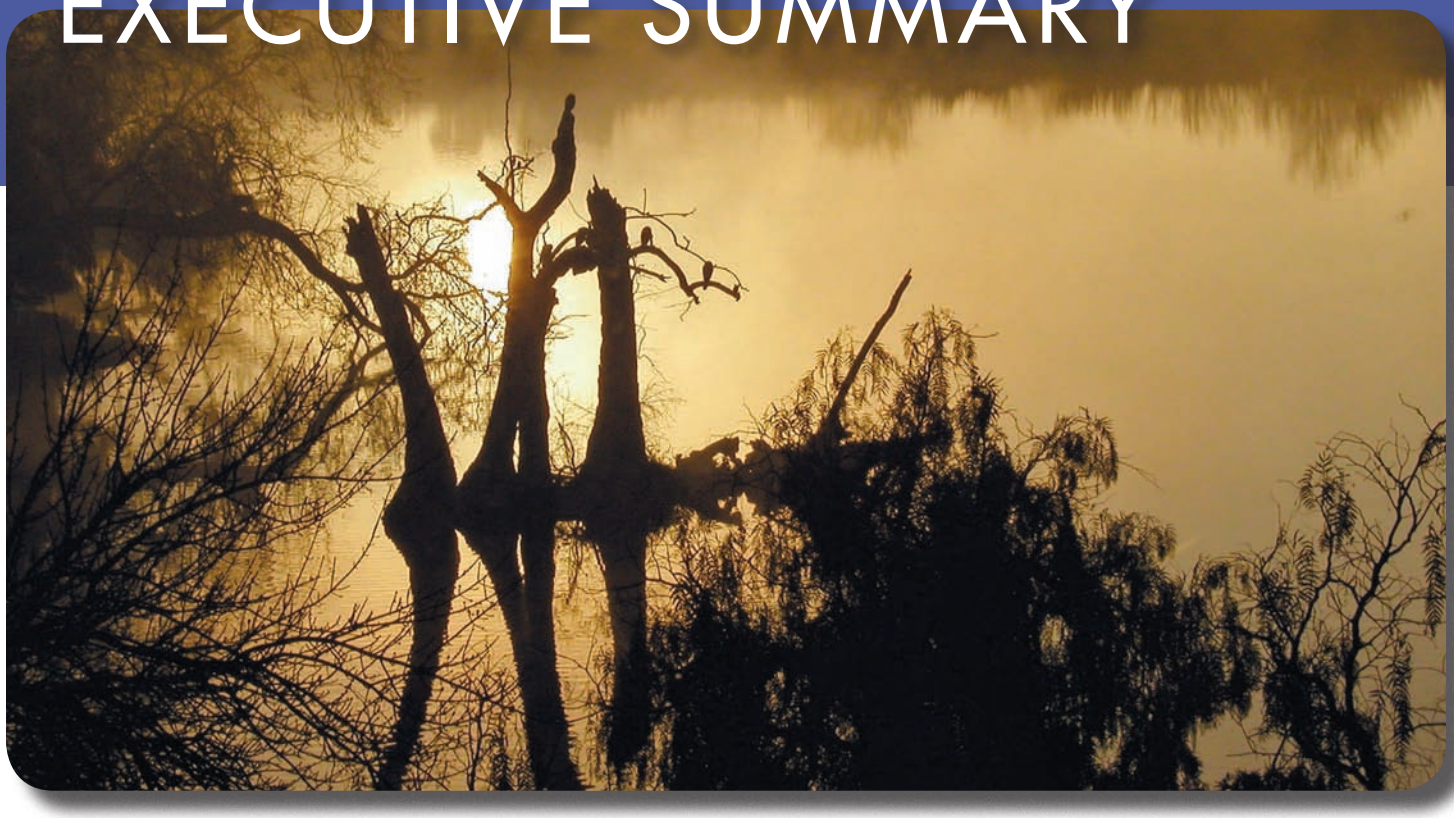
WUE UNIT INTERNS FOR FY 06/07

(From left): Amber Pacheco, Sven Rosengreen, Julianna Wittmann, Justin Finch, Michael Gonzales, Elizabeth Sarmiento, Erica Silva and Catherine Cox.

EXECUTIVE SUMMARY



A groundwater recharge pond at the Santa Clara Valley Water District's Almaden campus.

The Santa Clara Valley Water District's (District) water conservation, and water recycling programs are a **key part of the District's core business**, providing about 14 percent (or roughly 57,000 acre-feet in FY 06/07) of the District's total water supply. The District is planning on raising this percentage significantly; **by the year 2030, Water Use Efficiency (WUE) Programs, which includes desalination in addition to water conservation and water recycling, will account for 30 percent of the total water supply.**

Total Water Supply – by 2030

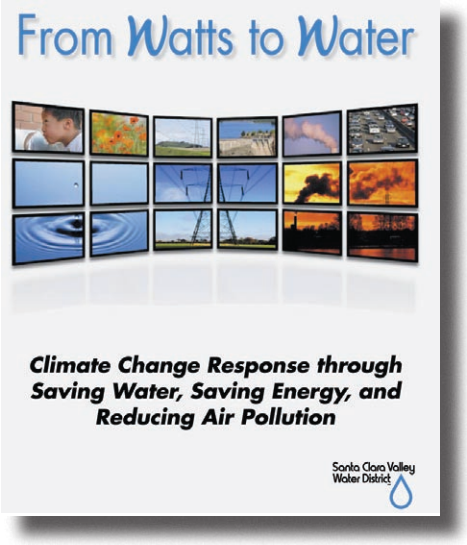
Water Use Efficiency programs **reduce demand on existing water and energy supplies**, helping reduce the costs and environmental impacts of developing additional supplies. In addition to helping to meet long-term water reliability goals, WUE programs also help meet short-term increases in demand placed on supply during critical dry periods. These programs also protect the South Bay salt-marsh habitat by reducing freshwater effluent released from wastewater treatment facilities.

2007 Breathe California Clean Air Award.

These programs assist the District in meeting its Board Ends Policies for water supply reliability, water conservation and water recycling. The District Board's policies, in conjunction with the District's 2003 Integrated Water Resources Planning Study (IWRP) and 2005 Urban Water Management Plan (UWMP), require that: Water conservation is implemented to the maximum extent that is practical; Water recycling is expanded within Santa Clara County in partnership with the community; and a variety of water supply sources are available to minimize risk.

This sixth Year End Report provides an overview of achievements in Fiscal Year 06/07, and a look at current water use efficiency programs, including water conservation, water recycling and desalination. The report also looks at new and future projects, partnerships and research completed.

One of the most significant reports the District's WUE Unit has produced is its **Energy and Water Report**, "From Watts to Water: Climate Change Response, through Saving Water, Saving Energy, and Reducing Air Pollution." This report, released in June 2007, provides an analysis of the energy savings and air quality benefits provided by the District's comprehensive suite of water conservation



and water recycling programs, programs that have resulted in cumulative savings of 427,000 acre-feet (AF) of new water supplies between FY 92/93 and FY 06/07. In addition to saving water and providing greater water supply reliability, water conservation and water recycling programs save energy and thereby reduce air pollutant emissions, including carbon dioxide, a greenhouse gas that contributes to global warming. The analysis, which was recently updated with data from FY 06/07, shows that *the District's water conservation and water recycling programs have resulted in savings of approximately 1.62 billion kilowatt-hours (kWh) of energy, which represents a financial savings of $208 million dollars (in residential electricity rates) and is equivalent to the annual electricity required for 236,000 households.* Through saving energy, emissions of approximately 381 million kg of carbon dioxide, were eliminated, which is the equivalent of removing 82,000 passenger cars from the roads for one year.

The report also summarizes how the District is continuously working to achieve energy efficiency and maximize renewable power usage at its facilities to reduce greenhouse gas emissions, as well as how the District is committed to replacing its oldest fleet vehicles with hybrid vehicles.

The District was also proud to receive the **2007 Breathe California Clean Air Award** for its achievements in reducing air pollution through saving energy as well as through using cleaner energy sources. The District was the only organization to receive the award in the Leadership category. The District's Clean Air Award application summarized its efforts taken towards adapting to and mitigating the effects of climate change through its water use efficiency programs, which save water, energy, and reduce air pollutant emissions, including carbon dioxide emissions reductions. The award application also summarized how the District is continuously working to achieve energy efficiency and maximize renewable power usage at its facilities to reduce greenhouse gas emissions.

In FY 06/07, the District's WUE Unit received more than $1.46 million in grant funding for several new projects, including the following:

- A grant of $553,750 was awarded to the District for a commercial and apartment High-Efficiency Toilet Installation Program. This program, to be funded by a Department of Water Resources Proposition 50 grant, is designated to help fund the installation of water-efficient toilets in the Commercial, Industrial and Institutional (CII) and Multi-Family Dwelling (MFD) sectors. This program will begin in FY 07/08.
- The District received a U.S. Bureau of Reclamation grant of $235,000 for a Residential Irrigation System Hardware Retrofit Program, which gives rebates to residents who install water-efficient irrigation equipment. This program began in FY 06/07.
- A regional grant of $2.9 million was awarded to 13 Bay Area water agencies, including the District, for a regional high-efficiency clothes washer rebate program for residents. The District's portion of this DWR Proposition 50 grant funding will be $675,000. This program is expected to begin in FY 07/08.

In FY 06/07, the District's WUE program also administered **$693,900 in cost-sharing agreements.**

WATER CONSERVATION PROGRAMS

INDOOR PROGRAMS - RESIDENTIAL		
Program Name	*Program Participation for FY 06/07*	*Total Program Participation To Date*
Water-Wise House Call Program	2,121 surveys	23,016 surveys
Residential High Efficiency Toilet Rebate Program	402 rebates	636 rebates
Residential Clothes Washer Rebate Program	9,433 rebates	68,338 rebates
Showerhead/Aerator Distribution Program	15,947 units distributed	240,115 units distributed
Water Softener Replacement Rebate Program	10 rebates	450 rebates

LANDSCAPE PROGRAMS – RESIDENTIAL & COMMERCIAL		
Program Name	*Program Participation for FY 06/07*	*Total Program Participation*
Weather Based Irrigation Controller (WBIC) Installation Program	217 installations	421 installations
Irrigation Technical Assistance Program (ITAP)	95 surveys	852 surveys
Irrigation System Hardware Rebate Program (ISHRP)	2 rebates	2 rebates
Residential Irrigation System Hardware Rebate Program (RISHRP)	New program	New program
Water Efficient Landscape Rebate Program (WELRP)	41 rebates	55 rebates

COMMERCIAL/INDUSTRIAL/INSTITUTIONAL PROGRAMS (CII)		
Program Name	*Program Participation for FY 06/07*	*Total Program Participation To Date*
Commercial Clothes Washer Rebate Program	215 rebates	2,651 rebates
Commercial/Industrial/Institutional (CII) & Multi-Family (MF) High-Efficiency Plumbing Retrofit Program (HETs and Urinals)	3,137 installed	5,318 installed
Commercial Water Survey Program	45 surveys	101 surveys
Water Efficient Technologies (WET) Program	2 rebates	71 rebates
Pre-Rinse Sprayer Program	1,431 installed	3,511 installed
Cooling Tower Conductivity Controller Rebate Program	New program	New program

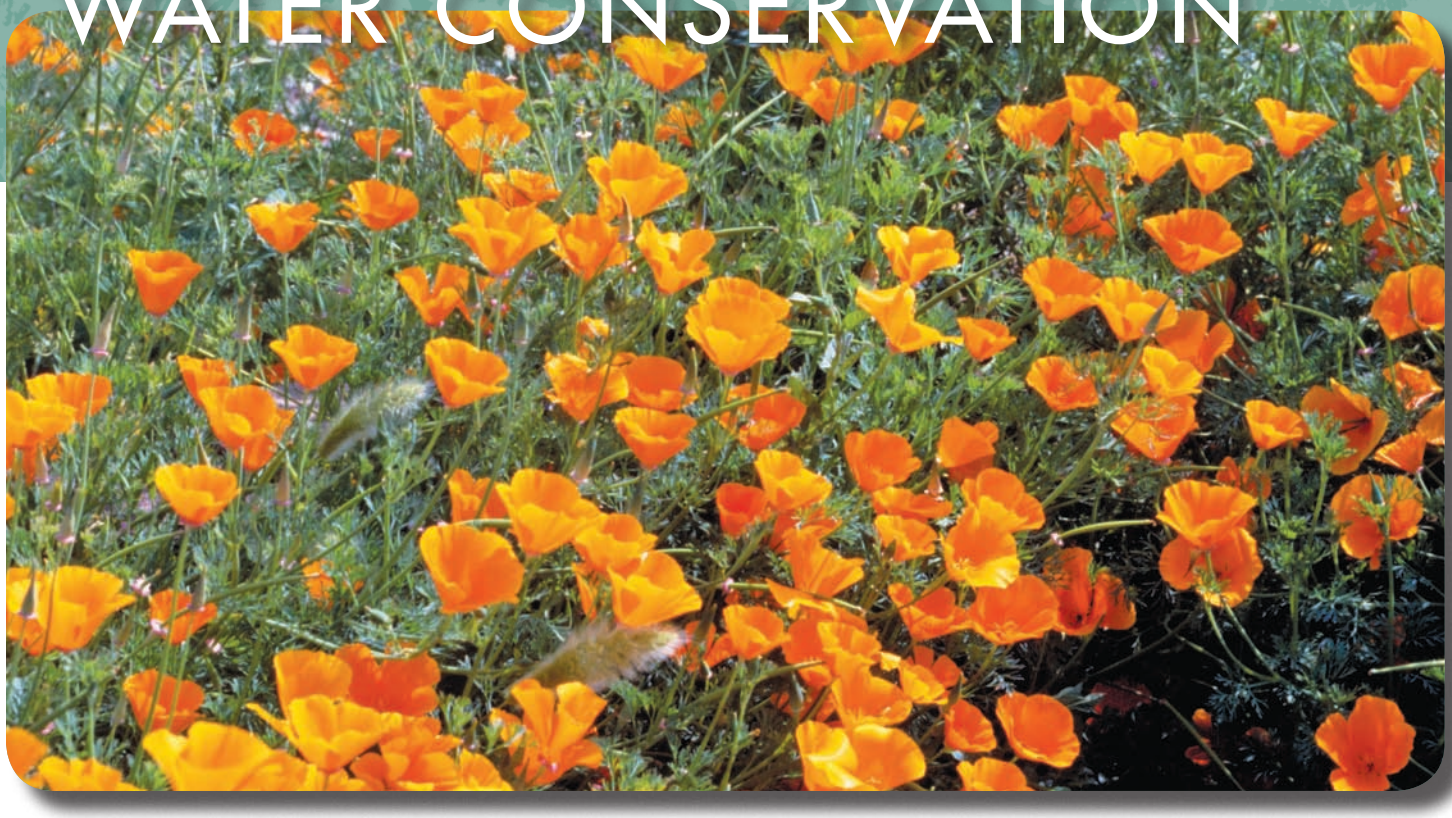
EDUCATION/OUTREACH	
Program Name	*Description*
Water Efficient Demonstration Garden	The District is in the process of designing and constructing a one acre water efficient demonstration garden. The idea of the garden is to provide an education resource, test facility and learning center that will showcase environmentally sound and cost-effective landscaping alternatives.
Media Campaign	Each year the District implements a county-wide water conservation media campaign that includes a mix of the following: television, radio, newspapers, transit, theater ads, bill inserts, postcards, door hangers, and/or letters/brochures.
Nursery Program	District partners with local nurseries to distribute water conservation information through display racks.
Workshops	Each year the District hosts various free workshops for homeowners and landscape professionals. Topics include: selecting plants for your water-wise garden, water-efficient irrigation design, water-wise garden design, gardening with natives, basic hydraulics of an irrigation system, how to increase distribution uniformity, and common mechanical and electrical problems.
Events	Each year the District promotes water use efficiency at numerous community events including gardening workshops, Earth Day events, environmental fairs, trade shows, etc. The District is also a sponsor of the Going Native Garden Tour.

CIMIS station at the Cooper-Garrod Vineyard in Saratoga

WATER RECYCLING PROGRAMS

Recycled Water Program (administered by various Santa Clara County agencies)	*Recycled Water Use/Potable Water Savings*
South Bay Water Recycling Program	10,100 AF/year
Sunnyvale Water Pollution Control Plant	2,078 AF/year
South County Regional Wastewater Authority	2,035 AF/year
Palo Alto Regional Water Quality	2,765 AF/year
TOTAL	**16,978 AF/YEAR**

WATER CONSERVATION



A field of California Golden Poppies

OVERVIEW

Besides meeting long-term water reliability goals, water conservation programs help meet short-term demands placed on the water supply system during critical dry periods. These programs also reduce the occurrence of demand reduction requirements made to water retailers and reduce wastewater flows to Bay Area treatment plants, protecting the Bay's salt-marsh habitat.

The water conservation program experienced another successful year, both in terms of water saved—reaching an annual total of about 41,000 acre-feet in FY 06/07—and in terms of programs, research and partnerships.

Water Conservation: IN THE HOME

District Board Director Larry Wilson participates in a Water-Wise House Call at his home.

The District continues to expand programs in the residential sector, as this remains one of the key areas for water conservation. The District employs a strategy of incentives and rebates, one-on-one home visits with free installations of water-saving devices, workshops, and outreach at community events to promote residential water savings.

In FY 06/07, the total annual savings attributable to all residential conservation programs reached 27,900 acre-feet.

WATER-WISE HOUSE CALL PROGRAM

The District has been providing the Water-Wise House Call Program to county residents at no cost since 1998. This program is available to residents of single family homes and to owners/managers of apartments, condominiums and mobile home complexes. During the survey, technicians check for toilet flapper leaks, measure fixture flow rates, offer conservation information, and install free toilet flappers, showerheads and aerators. Surveyors also test the customer's irrigation system for uniformity, calculate and program a personalized irrigation schedule, and provide landscaping tips.

The District performed 2,121 residential home surveys during FY 06/07. More than 23,000 home surveys have been completed since the program began.

LOW-FLOW SHOWERHEAD AND AERATOR DISTRIBUTION PROGRAM

In FY 06/07, the District distributed 11,581 aerators and 4,366 low-flow showerheads. Showerheads and aerators are provided, free of charge, to the public and to the local water retailers. They are also installed in residences during Water-Wise House Calls. These devices accounted for approximately 9,100 acre-feet per year in water savings for FY 06/07. More than 240,000 showerheads and aerators have been distributed since the program started.

RESIDENTIAL CLOTHES WASHER REBATE PROGRAM

The District began offering rebates for new, water efficient clothes washers in 1995. This effort continued through FY 06/07.

- Through FY 06/07, 68,388 rebates were issued.
- For FY 06/07, 9,433 rebates were issued, the highest in any fiscal year. This resulted in about 1,000 acre-feet of water savings per year.
- The rebate amount was either $100 or $150 depending on the efficiency of the machine.

The Consortium for Energy Efficiency, which rates the efficiency of individual machines, categorizes washing machines in tiers with the most efficient machines being placed in the highest tier. From July through December only the two highest tiers, Tier 3a and 3b, were rebated. Regardless of the program requiring more efficient machines, participation levels remained the same.

Throughout FY 06/07 the 13 Bay Area Water Agencies who participate in this rebate program began talks with PG&E to merge rebate programs. This partnership will allow customers to apply using one application form for both the water and energy rebate. This program continues to transform the market by only offering rebates on the most efficient machines while making it easier for customers to apply for their rebate.

High efficiency clothes washer

RESIDENTIAL HIGH-EFFICIENCY TOILET PROGRAM

The District's High Efficiency Toilet (HET) Program began in FY 04/05 and continues to provide a $125 rebate to residents when they replace their old inefficient toilets with new HETs. HETs use at least 20 percent less water than the federally regulated 1.6 gallon per flush (gpf) toilets and include three types of technologies:

1. Pressure assisted flush, which utilizes a flush valve similar to commercial grade toilets
2. Dual flush toilets which have full and half-flush options
3. Gravity flush toilets

The District has issued 636 HET rebates since the program began in FY 04/05. In FY 06/07, a total of 402 rebates were issued, more than any other fiscal year.

High Efficiency Toilet

WATER SOFTENER REPLACEMENT REBATE PROGRAM

Building on the experience and lessons learned from the pilot program, development of a full-scale Water Softener Replacement Rebate Program is underway. The program will be a regional effort among the District, San Benito County Water District, and South County Regional Wastewater Authority (SCRWA).

In FY 06/07, 10 rebates were issued. Since the program began, 450 rebates have been issued.

The District and San Benito County jointly received a $300,000 grant from the California Department of Water Resources under Proposition 50. The District is receiving $150,000 from the grant, which will go toward 1,000 Santa Clara County rebates of $150 each for the replacement of older water softeners.

As a regional effort, SCRWA contributed $30,000 towards an additional 200 rebates earmarked specifically within SCRWA's jurisdiction in the county. That area, Morgan Hill and Gilroy, has mostly hard water and therefore a prevalence of water softening devices. A water softener replacement rebate program is one solution to managing salt entering the SCRWA facility. The District and the cities of Morgan Hill and Gilroy continue joint efforts to educate residents in the SCRWA service area regarding salinity issues.

Water Conservation: IN LANDSCAPE

Example of water-efficient plants incorporated around a patio.

On average, about half of the water used by residents in the county goes to irrigating outdoor landscape. Having focused attention for many years on indoor water use, the District has now turned more of its attention to landscape irrigation—the area the District sees as having the greatest potential for water savings in the residential and commercial sectors. The District's WUE program offers a variety of programs, from irrigation evaluations and rebates for water-efficient irrigation equipment to classes and workshops, that help businesses and homeowners become as efficient as possible. The water savings attributed to these programs for FY 06/07 is about 2,200 acre-feet per year.

WATER-EFFICIENT LANDSCAPE REBATE PILOT PROGRAM

The Water Efficient Landscape Rebate Pilot Program (WELRP) began in December 2005. It is designed to help customers replace high water using landscapes, such as unused or unwanted irrigated turf grass, with District-approved low water use plants and/or permeable hardscape.

In FY 06/07, the District and the City of Morgan Hill formed a partnership with this program to share rebate costs for residents of Morgan Hill.

The rebate for this program is $75 per 100 sq. ft. for customers in Santa Clara County, with Morgan Hill customers receiving $150 per 100 sq. ft. of converted landscape. Maximum rebates are:

- $1,000 for single family residences
- $10,000 for commercial, institutional, industrial, and large landscape multi-family properties

(Maximum rebates are doubled in Morgan Hill)

In FY 06/07, 41 rebates were issued resulting in the removal of more than 87,000 square feet of high water use landscapes.

IRRIGATION TECHNICAL ASSISTANCE PROGRAM

The District has been providing technical assistance to large landscape managers since 1995 through the Irrigation Technical Assistance Program (ITAP). Technicians check the irrigation system for inefficiencies, determine an optimum water use budget, and make site-specific recommendations to improve water management. ITAP participants can potentially save up to 1,500 gallons per acre per day, representing a potential $1,000 per acre cost savings annually.

The District provided 95 sites with ITAP services in FY 06/07. This is a record number for the program, with more completed than in any other fiscal year. Since the program's inception, over 850 parks, golf courses, large commercial sites, and large residential developments have received ITAP evaluations.

LANDSCAPE AREA MEASUREMENT AND WATER USE BUDGETS STUDY

In 2002, the District used multi-spectral images to identify landscape and agricultural areas by parcel for more than 900 square miles in Santa Clara County. These images were then used to categorize types of surfaces (such as areas of turf grass, trees, landscaping, water features, bare ground, hardscape, etc.) for each parcel. This information was used to calculate an optimal water budget for sites around the county.

Concurrently, the District, along with Cal Poly's Irrigation Training and Research Center, is developing web-based software that allows county water users to receive a site-specific water budget on-line by entering their contact information, meter readings, and other data. This countywide water budget database will allow on-line users to compare their actual water usage with recommended amounts for their specific area.

IRRIGATION SYSTEM HARDWARE REBATE PROGRAM (FOR COMMERCIAL & RESIDENTIAL LARGE LANDSCAPE)

This program aims at difficult-to-attain but cost-effective water conservation on sites with one acre or more of irrigated landscape. After participating in the District's Irrigation Technical Assistance Program (ITAP), commercial and residential large landscapes are eligible to receive a rebate of up to 50 percent (up to $4,500) on the cost of ITAP-identified irrigation system upgrades. This program was launched in December 2005 and will continue into FY 07/08.

WEATHER BASED IRRIGATION CONTROLLER INSTALLATION PROGRAM

The District's Weather Based Irrigation Controller (WBIC) Installation Program employs a new generation of irrigation controllers in managing landscape water use. These controllers (also called "smart controllers") utilize data on temperature, relative humidity, wind speed and solar radiation to calculate site-specific irrigation schedules. The controllers modify their irrigation schedules daily to remain consistent with the landscape's changing irrigation requirements. The program installed 217 WBICs in FY 06/07, and 421 since the program began.

Programming a Weather-Based Irrigation Controller.

IRRIGATION SYSTEM HARDWARE RETROFIT PROGRAM (FOR RESIDENTIAL LANDSCAPES)

By building on the customer information accrued through the Water-Wise House Call Program over the last three years, the Residential Irrigation System Hardware Retrofit Program targets the installation of water-efficient irrigation hardware on residential sites previously identified as having high, unrealized conservation potential. These hardware installations can be expected to produce water savings lasting longer than the savings that can be attained through behavioral change alone. This project began in FY 06/07 and will continue into FY 07/08.

Water Conservation: IN BUSINESS

Water surveyor measuring a swimming pool at a high school in Palo Alto.

The District's Water Use Efficiency Program combines education, technical assistance and financial incentives to encourage reduced water consumption among commercial, industrial and institutional water users.

Annual water savings attributable to business conservation programs reached 9,800 acre-feet in FY 06/07.

COMMERCIAL, INDUSTRIAL, INSTITUTIONAL (CII) WATER USE SURVEY PROGRAM

This program for commercial, industrial and institutional (CII) establishments in Santa Clara County began in FY 04/05 and continued into FY 06/07. It provides:

- A thorough survey of the indoor water use of CII establishments
- Suggestions for ways to become more water efficient
- Recommendations for District programs that can help fund water efficiency improvements

The reports recommend District programs that can help fund water efficiency improvements, such as the Water Efficient Technologies Program and the Irrigation Technical Assistance Program, to expedite equipment changes and address outdoor water use. Because most of the water savings potential seems to exist in the industrial and institutional sectors, those were the sectors targeted.

For FY 06/07, the program concluded, with a total of 45 completed reports (a total of 101 surveys have been completed since the start of the program in FY 03/04). A final report, detailing the water savings potential identified in these facilities was produced in June, 2007. This program will begin again, with a new contractor, in early FY 07/08.

WATER EFFICIENT TECHNOLOGIES PROGRAM

The Water Efficient Technologies (WET) Program provides rebates for process, technology, and equipment retrofits that save water. The rebate rate is $4.00 per hundred cubic feet (ccf) of water saved annually with a minimum annual water savings requirement of 100 ccf.

In FY 06/07, the District issued $2,250 in WET rebates and saved more than 430 million gallons of water due to this year's projects as well as previous year's projects (projects are assumed to have a minimum of a five-year lifespan). Since 1997, the District and the City of San José have entered into a cost-sharing agreement to help fund this program. Additionally, in 2001 the District expanded this program county-wide. To date, the District has funded (either entirely or through cost-sharing with the City of San José) $784,500 for 71 projects saving approximately 2.2 billion gallons (2.8 million ccf) over the lifetime of the projects.

One highlight of this year's program was a project at Santa Clara University for the replacement of 32 water inefficient urinals with waterless urinals in several student dormitories. Twenty-two percent of urinals replaced were one gallon per flush urinals, and 78 percent of urinals were three gallons per flush urinals. This project saves 2,306 gallons of water per day (1,125 hundred cubic feet per year) and was awarded a rebate of $4,500 (this rebate was cost-shared between the District and the City of San José).

COMMERCIAL CLOTHES WASHER REBATE PROGRAM

The Commercial Clothes Washer Rebate Program provides laundromats and apartment complexes in Santa Clara County a rebate of $400 for each purchased or leased commercial high-efficiency clothes washer.

The District rebates only the most water efficient machines. By doing this, the District hoped to influence buyers to make the more water-efficient choice. The Commercial Clothes Washer Rebate Program provided 215 rebates to 62 facilities in FY 06/07, for a water savings of 450 acre-feet per year. Since the start of the program, 2,651 rebates have been issued.

Postcard promoting the Commercial Washer Rebate Program

COMMERCIAL AND APARTMENT HIGH-EFFICIENCY TOILET (HET) INSTALLATION PROGRAM

In 2003, the District received grant funding from the California Department of Water Resources (DWR) to perform "innovative high-efficiency commercial plumbing retrofits," including conducting a direct installation program for commercial high-efficiency toilets (HETs).

The HETs installed through this program, whose pressure assisted flushing mechanisms use only 1.0 gallon per flush, save about 35 percent more water than conventional Ultra-Low Flush Toilets (ULFTs), which use 1.6 gallons per flush. To increase the savings still further, the HETs are marketed primarily to commercial sites with high savings potential, such as restaurants. The HETs are also being installed in apartment complexes. For all installations, only toilets that are currently flushing at 3.5 gallons per flush or more qualify for replacement in the program.

A technician assembles an HET for an apartment complex

In FY 06/07, over 3,000 HETs were installed through this program, nearly tripling the previous year's numbers, in part due to including apartment complexes in this year's program.

The total number of HETs installed in the commercial sector was 1,793 and the total number installed in apartment complexes was 1,344. Over 5,300 HETs have been installed since this program began.

A total of 78 high-efficiency urinal valves were installed as well in FY 06/07 through this program.

PRE-RINSE SPRAY VALVE PROGRAM

The District continued the Pre-Rinse Spray Valve program this fiscal year, with its contractor installing 1,431 sprayers in FY 06/07 and 3,511 sprayers since the program began in FY 02/03. Funding was provided by grants from the California DWR and California PUC, as well as local cost-sharing partners.

A high-efficiency pre-rinse sprayer

COOLING TOWER CONDUCTIVITY CONTROLLER REBATE PROGRAM

The District is collaborating with the California Urban Water Conservation Council to offer a grant-funded rebate program for cooling tower conductivity controllers. Cooling towers are used to regulate air temperature in commercial facilities and use substantial quantities of water; the District's analyses suggest that 50 to 75 percent of them do not use water efficiently. Cooling tower conductivity controllers produce more efficient water use. The cooling tower conductivity controller rebate program began in June 2007 and we are currently identifying participants for the program. The rebate amount is $900 per conductivity controller.

Water Conservation: IN AGRICULTURE

Local crops employing increased irrigation efficiency methods.

The District's Water Use Efficiency Program conducts growers meetings and provides technical assistance to help growers increase irrigation efficiency. These help growers to comply with non-point source discharge regulations. The water savings attributed to these agricultural programs is roughly 1,000 acre-feet per year.

MOBILE LAB PROGRAM

The District's Mobile Lab Program started in 1998. The program assessed the uniformity of growers' irrigation systems. The Mobile Lab program provided free pump and irrigation system evaluations to farmers and greenhouse operators. Since its inception, it provided 325 irrigation system evaluations to 98 growers, which represents a total of 7,845 acres. Cumulative potential annual water savings of 6,060 acre-feet were identified. Financial incentives for program participation were provided through discounts to the groundwater extraction charges.

Irrigation uniformity is important because the evenness of water distribution across the field reduces the overall water requirement. This, in turn, increases the efficiency of fertilizer use because fewer nutrients are leached below plant's root zone. Such an increase in efficiency reduces the leaching of fertilizer-derived nitrogen to the groundwater.

CALIFORNIA IRRIGATION MANAGEMENT INFORMATION SYSTEM (CIMIS)

This free service provides daily reference evapotranspiration estimates to growers and landscape irrigators to use for scheduling irrigation. Reference evapotranspiration is the water use of a standardized green grass crop. The evapotranspiration of all other crops is mathematically related to reference evapotranspiration. The District owns and maintains one CIMIS weather station in Santa Clara County at Live Oak High School in Morgan Hill (since 1997).

The District's CIMIS weather station is part of a statewide network of stations from which the California Department of Water Resources (DWR) downloads data nightly. Growers and landscape irrigators can access current evapotranspiration information around the clock by visiting the District web site at www.valleywater.org.

The District also gathers weather data from so-called "non-ideal" sites. These are sites throughout the county (and the state) which do not meet the specifications for a standard CIMIS site, and which are far removed from reference CIMIS stations. However, data from non-ideal sites are correlated with their nearest CIMIS site to develop estimates of reference evapotranspiration for the environment surrounding the non-ideal site. This long-range project gives landscape managers and growers in local microclimates more accurate data for their irrigation decisions.

Water Conservation:

OUTREACH & EDUCATION

Students at the Children's Discovery Museum play the "Don't Waste a Drop" game to learn about the value of water.

SUMMER 2007 WATER CONSERVATION CAMPAIGNS

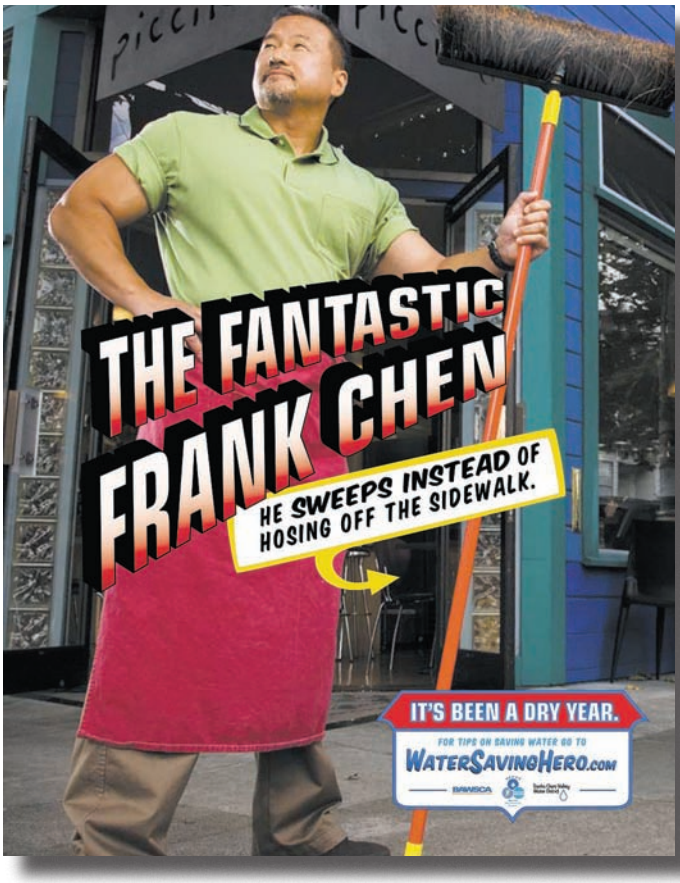
At the end of 2006 and the beginning of 2007, California experienced one of the driest winters on record. Because of a record rainfall in the FY 05/06 year and good long-term planning, the District had sufficient reserves to meet the upcoming 2007 summer demands.

At the beginning of the summer 2007 water conservation campaign, the District was in better shape than many water districts. Its underground aquifers had given the District a good reserve to meet the upcoming demands. However, because of the dry year, the District began its summer campaign with the slogan: "When it rains, it doesn't always pour…" The original intent of this first wave of advertisements was to educate the public to the fact that it had been a dry year. The campaign appeared in the regions largest publication, the San Jose Mercury News, as well as all the community newspapers reaching Santa Clara County. The campaign appeared in print, on buses, on door hangers and in radio ads in English and Spanish.

As the summer started, another problem surfaced and necessitated a change in the stance of our messages. The Sacramento-San Joaquin Delta experienced a problem with the protection of the Delta smelt fish. As a result, the supply to all agencies that rely on water flowing through the Bay Delta was drastically was drastically cut as pumps shut down. It was not known when the pumps would be turned back on again. As a result, the District felt that a more aggressive message explaining the problem needed to be stated. Initially the ads featured a small yet significant change. In this message, the District explained the problem of the Bay Delta and asked for a 10% voluntary cutback in water use. All the campaign material was updated to reflect this change.

As the summer wore on and the situation with the Delta Smelt persisted, the District decided to be more aggressive in its messaging and increase its advertising. The District changed its messaging to a more humorous yet serious message. The 10 percent cutback was in effect and the slogan changed to "Water reductions requested. Extremes not required."

These ads replaced the original "When it rains…" and appeared in the San Jose Mercury News, community newspapers, radio spots, movie theaters and TV commercials.



In addition to these outreach efforts, the District also has participated in a Bay Area-wide regional campaign, "Be A Water Saving Hero." These ads showcase six different messages demonstrating easy ways to conserve water and are featured in print, bus, billboard and radio ads, as well as through a dedicated website, www.watersavinghero.com..

WATER USE EFFICIENCY NURSERY PROGRAM

For the last nine years, the District has distributed water conservation information through display racks located at nursery and garden stores. These display racks contain literature discussing water-wise gardening, efficient lawn watering, drought resistant plants, drip irrigation and District programs. In FY 06/07, 20 nurseries participated in the program throughout Santa Clara County.

Nursery Program literature rack

WATER-EFFICIENT LANDSCAPING WORKSHOPS FOR HOMEOWNERS

The District held its 15th annual Water Efficient Landscaping Workshop series in March 2007. The workshop topics were: Selecting Plants for your Water-Wise Garden, Water Efficient Irrigation Design, Water-Wise Garden Design, and Gardening with Natives. The workshops are presented by landscape and irrigation experts each spring to provide practical advice on water-efficient gardening. A total of 185 people attended this series of workshops.

A District display of water-efficient plants from the 2007 South Bay Home and Garden Show.

COMMUNITY EVENTS

The District promoted water use efficiency at numerous community events in FY 06/07, including: Water Conservation Day at the San Jose Giants, environmental fairs, Earth Day events, and many others. These events give the District's WUE program an opportunity to talk to the public directly, and to educate them about water use efficiency with hands-on displays, educational handouts, and free water-efficient device distribution.

GOING NATIVE GARDEN TOUR

The District co-sponsored the 5th Annual Going Native Garden Tour 2007 on Sunday, April 29th. The tour was a great success, showcasing 46 native plant gardens throughout Santa Clara and San Mateo counties, with a recorded 5,500 visitors. The District has sponsored this event since its inaugural year.

The Going Native Garden Tour is the Bay Area's first native garden tour. This community-based event is free of charge to the public. Each tour features home and public gardens in a self-guided tour format. Its goals are to demonstrate reduced water, chemical and pesticide use, improved habitat and the unique aesthetic appeal of gardens designed with California native plants.

LANDSCAPE IRRIGATION WORKSHOPS FOR PROFESSIONALS

The District conducts a special one-day water conservation workshop each year for landscape professionals. Topics change annually as irrigation issues are identified in the field. In FY 06/07, the workshop covered basic hydraulics of an irrigation system, how to increase distribution uniformity, and common mechanical and electrical problems. The District offers the contractor workshops in both English and Spanish.

SEMINARS FOR AGRICULTURE PROFESSIONALS

The District has presented two growers meetings annually since 1998 on topics relating to water and fertilizer use efficiency, District programs, farm safety and legal compliance. All workshops presented with simultaneous Spanish translation. Mobile Lab program services were discussed at this year's winter meeting. Pump efficiency and the collection of data from electrical power meters were presented at the spring meeting. A series of meetings to coach attendees on how to prepare their Farm Water Quality Plans were held monthly throughout the winter for the greenhouse grower community. The District cooperated with UC Cooperative Extension on these meetings, and provided simultaneous interpretation and translation of the materials into Chinese.

Annual Fertigation Workshop for Irrigators

The 2006 Annual Fertigation Workshop was held on July 12 in Hollister. Simultaneous translation for Spanish speakers was available.

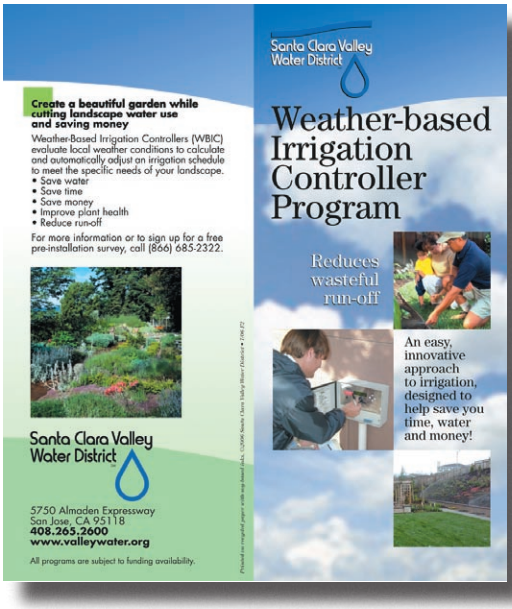
Examining fertilizer distribution

PUBLICATIONS

The WUE Unit provides a wide variety of publications, from irrigation guidelines, to a water-efficient garden interactive CD-ROM, to brochures on specific programs offered. In FY 06/07, the following brochure and report were produced:

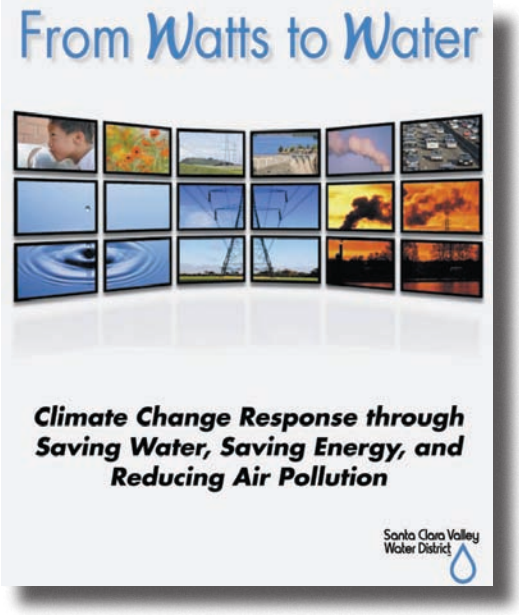
Weather-Based Irrigation Controller Program Brochure

This brochure describes the District's new Weather-Based Irrigation Controller Program.



From Watts to Water: Climate Change Response Through Saving Water, Saving Energy, and Reducing Air Pollution

This report, published in June 2007, provides an analysis of the energy savings and air quality benefits provided by the District's comprehensive suite of water conservation and water recycling programs.



Water Conservation:

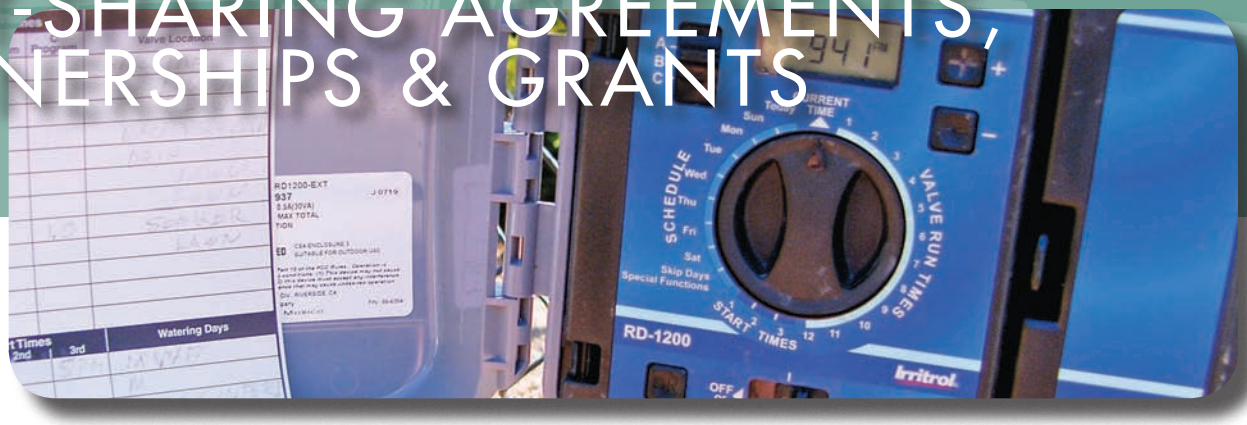
CALENDAR OF EVENTS

Staff discusses water conservation and water recycling at a community event.

2006		
DATE	**EVENT**	**LOCATION**
July 12, 2006	Drip fertigation workshop	Hollister
July 29, 2006	District day at the San Jose Giants	San Jose
August 1, 2006	National Night Out	San Jose
August 17, 2006	Irrigation Seminar in English	Santa Clara
August 18, 2006	Irrigation Seminar in Spanish	Santa Clara
August 23, 2006	Fetigation Workshop	Watsonville
August 26, 2006	Mayfair Park - Neighborhood Celebration of Lower Silver Creek Flood Protection Project completion	San Jose
September 8 – 10, 2006	25th Annual South Bay Home and Garden Show	Santa Clara
October 4, 2006	International Facility Management Association, Silicon Valley	Santa Clara
October 5, 2006	NASA Ames Safety Fair Week	Moffett Field
October 14, 2006	Schools Save Green with Go Green An Environmental Resources Conference	San Jose
October 25, 2006	Sustainable Silicon Valley "A Favorable Climate for Climate Action"	Santa Clara University
November 14, 2006	3rd Annual Regional Integrated Pest Management Conference	San Jose
November 28, 2006	Water Management for Water Quality	San Martin

2007		
DATE	**EVENT**	**LOCATION**
February 12, 2007	Farm Water Quality Plan Workshop	San Jose
March 3, 2007	Water Efficient Landscaping Workshop Series – Gardening with Natives	San Jose
March 7, 2007	International Facility Management Association-Silicon Valley-Water Conservation Brown Bag	Santa Clara
March 10, 2007	Water Efficient Landscaping Workshop Series – Selecting Plants for your Water-Wise Garden	San Jose
March 15, 2007	Farm Water Quality Plan Workshop	San Jose
March 16, 2007	2007 Green Business Conference - Environmental Values at Work	San Jose
March 17, 2007	Water Efficient Landscaping Workshop Series – Water-Wise Garden Design	San Jose
March 20, 2007	Warm Season Crop Management Seminars: Pepper Crop Production Management	San Martin
March 22, 2007	4th Annual Water Conservation Showcase	San Francisco
March 24, 2007	Water Efficient Landscaping Workshop Series - Water Efficient Irrigation Design	San Jose
April 7, 2007	7th Annual Santa Clara Area Community Festival	Santa Clara
April 11, 2007	California Apartment Association Northern California Rental Housing Conference and Expo	Santa Clara
April 15, 2007	Thirteenth Annual Spring Garden Market – Master Gardeners of Santa Clara County	San Jose
April 18, 2007	Hewlett Packard's Earth Day Vendor Fair	Palo Alto
April 19, 2007	Hewlett Packard's Earth Day Vendor Fair	Cupertino
April 19, 2007	Network Appliance Earth Day	Sunnyvale
April 22, 2007	St. Julie's Catholic Church Earth Day Celebration	San Jose
April 26, 2007	Roche Palo Alto 2007 Sustainability Fair	Palo Alto
April 29, 2007	5th Annual Going Native Garden Tour	Santa Clara Valley Area - Multiple Locations
June 2, 2007	ECHO (Executive Council of Homeowners) Annual Seminar and Trade Show	Santa Clara
June 6, 2007	English Irrigation Seminar	Santa Clara
June 7, 2007	Spanish Irrigation Seminar	Santa Clara
June 21, 2007	NEC Electronics America Inc. 2nd Annual Environmental Day	Santa Clara

Water Conservation: COST-SHARING AGREEMENTS, PARTNERSHIPS & GRANTS



Irrigation controller at local residence.

Water use efficiency is a community-wide effort, and it will take the cooperation of many agencies, organizations and water retailers to meet future water supply goals. The District maintains cost-sharing agreements with many cities and utilities to provide water-use efficiency programs for residential and commercial water customers.

The District's WUE program administered $693,900 in cost-sharing agreements in FY 06/07.

Cost-sharing agreements that were active in FY 06/07 included:

- City of Palo Alto: Cost-sharing agreement for a variety of water conservation programs $96,400
- City of Santa Clara: Cost-sharing agreement for commercial high-efficiency clothes washer rebates $12,500
- City of San Jose: Cost-sharing agreement for a variety of water conservation programs $480,000
- California Water Service Company: Cost-sharing agreement for a variety of water conservation programs $25,000
- City of Morgan Hill: Cost-sharing agreement for the Water-Efficient Landscape Rebate and Residential HET Programs $50,000
- South County Recycled Water Authority: Cost-sharing agreement for the Water Softener Rebate Program $30,000

The District also relies on grants from state and federal agencies to help fund program expansion and vital research. The District's WUE program participated in many different on-going grant projects this year, including:

- Weather-Based Irrigation Controller Program: This regional DWR Proposition 13 grant for funding weather- based irrigation controller retrofits began in FY 05/06.
- Demonstration Garden: The District's WUE program was awarded a DWR Proposition 50 grant in FY 05/06 for this program.
- Residential High-Efficiency Clothes Washer Rebate Program: This regional DWR Prop.13 grant program ended in December 2006.
- Cooling Tower Conductivity Controller Rebate Program: This program, with DWR grant funding via the CUWCC, commenced in FY 06/07.
- Water Softener Program: The District and San Benito County Water District were jointly awarded funding for this program from DWR.
- Pre-Rinse Spray Valve Program: The District had two programs in FY 06/07 with funding from a CPUC grant and a DWR grant.
- Irrigation System Hardware Rebate Program: This DWR Proposition 13 grant-funded program began in FY 05/06.
- Innovative High-Efficiency Commercial Equipment Retrofit Program: This program, funded by a DWR Proposition 13 grant, was designated to help fund financial incentives to replace commercial equipment with water-efficient models. This program commenced in FY 04/05 and continued through FY 06/07.

In FY 06/07, several new grants were received:

- Commercial and Multi-Family Dwelling High-Efficiency Toilet Installation Program: This program, to be funded by a DWR Proposition 50 grant, is designated to help fund the installation of water-efficient toilets in the CII and MFD sectors. This grant funding will begin in FY 07/08.
- Regional High-Efficiency Residential Clothes Washer Rebate Program: This program, to be funded by a DWR Proposition 50 grant, is designed to provide rebate incentives for residents who purchase high-efficiency clothes washers. The entire regional grant amount is $2,981,350 for 13 agencies; the District's share is $675,000. This grant funding will begin in FY 07/08.
- The District received a USBR grant of $235,000 for a Residential Irrigation System Hardware Retrofit Program. This program began in FY 06/07.

Water Conservation: STUDIES & RESEARCH

District staff, Jeannine Larabee, records data on artificial turf.

The District is continually conducting research, on its own and in collaboration with other agencies, to increase water savings and cost-effectiveness in its water conservation programs. Data from the studies and research listed below will be vital in creating an effective, long-range water management strategy for Santa Clara County.

ARTIFICIAL TURF STUDY

Artificial turf has the potential to save substantial quantities of water, and as such, has received considerable attention from the water conservation community. The District is considering offering financial incentives for the installation of artificial turf but is currently conducting a study to determine whether there are any adverse water quality impacts to groundwater or to surface water due to leachate from artificial turf. A preliminary study by the District suggests that heavy metal contamination may be a concern. Toward this end, the District is partnering with Stanford University to conduct a water quality study at field sites around the county where artificial turf has been installed. The District and Stanford University will also conduct laboratory studies of artificial turf concurrently with the field study to better understand the water quality impacts.

DISTRICT'S WUE PROGRAM STRATEGIC PLAN

Water conservation, recycling, and desalination are integral parts of the current and future water supply source for the future. The Water Use Efficiency Strategic Plan will establish a future road map for the Water Use Efficiency Unit. The Plan will recommend a comprehensive set of programs in the areas of water conservation, recycling, and desalination, along with cost-benefit analyses and savings potential. The Plan will also help the District's WUE program fulfill its commitment to the General Manager Comprehensive Plan with regard to water conservation and recycling, and is expected to be completed in FY 07/08.

WATER CONSERVATION MARKETING PLAN

This Water Conservation Marketing Plan will create a water conservation marketing strategy for the next five years. The plan will focus on developing a strategy for two planning horizons:
1) the near-term planning for the 2008 spring/summer campaign; and
2) the long-term planning for marketing water conservation programs for the following four years. The plan is expected to be completed by March 2008.

Water Conservation:
FUTURE PROJECTS

Local area drought-tolerant garden

Waterwise planting signage on the District campus

DEMONSTRATION GARDEN

The water use efficiency demonstration garden will be an educational resource, test facility and learning center showcasing environmentally sound and cost-effective landscaping alternatives. The overall goal of this project is to design and develop a unique demonstration landscaping site that promotes water use efficiency. Its primary purpose is to educate the general public on the use of water-wise plants while promoting efficient irrigation technologies and recycled water use.

The District is currently developing construction drawings for the 1+ acre garden. To offset some of the construction costs, the Water Use Efficiency Unit applied for and was awarded $146,000 in grant funding through Proposition 50 (the District will be responsible for approximately $48,000 in "in kind" costs which are primarily for annual maintenance). The District is also working with the City of San José Parks and Recreation Department, the Guadalupe Gardens Technical Committee, and the Friends of Guadalupe Park and Gardens in the implementation of the project.

WATER RECYCLING & DESALINATION

Recycled water used for irrigating a golf course in Santa Clara County

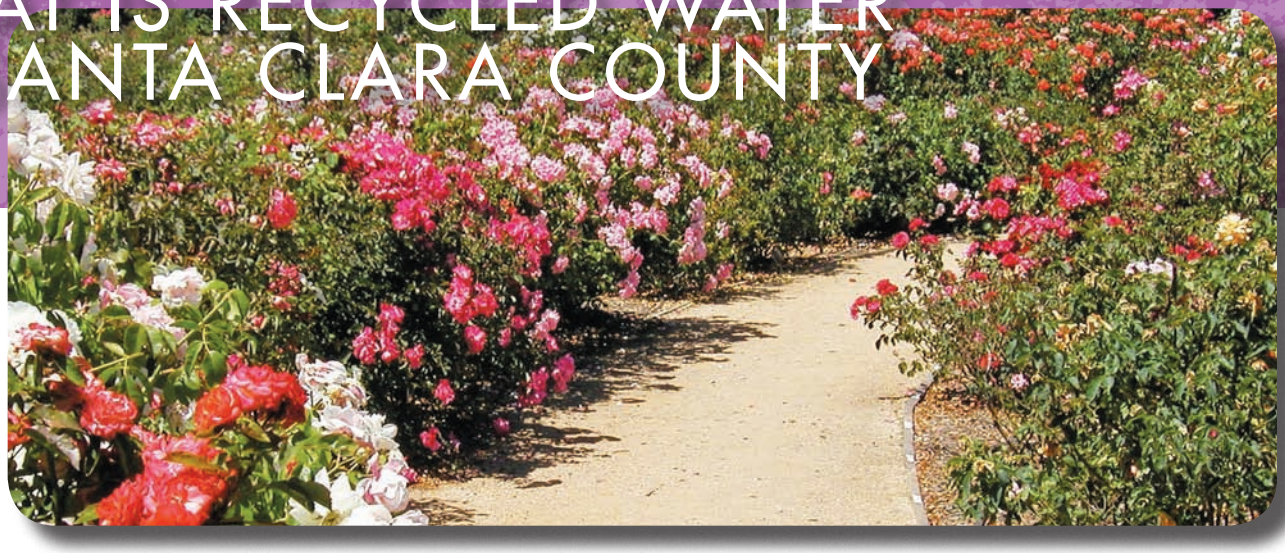
OVERVIEW

The District collaborates and partners with local agencies and recycled water producers on recycled water development and use in Santa Clara County. Water demand will correlate to the county's population and economy, and will expand as the economy expands. Recycled water and desalination are two potential sources of water supply that are integrated into the District's diversified water supply portfolio. These sources are more locally controlled than any other water brought into the county.

Recycled water and desalination are all-weather resources. Increasing recycled water supplies in Santa Clara County would increase overall water supply reliability, augmenting the District's imported water supply and local surface and groundwater supplies.

Water Recycling & Desalination:

WHAT IS RECYCLED WATER IN SANTA CLARA COUNTY



Rose Garden at Guadalupe Park in San Jose uses recycled water.

Quick Facts about recycled water in Santa Clara County

- Recycled water in Santa Clara County is of tertiary treatment level. This means that it has undergone three levels of treatment plus disinfection.
- All recycled water in this county meets the required standards or is of higher quality than the standards set by the State. The second stage of treatment is sufficient for landscape irrigation according to the state standards. The recycled water quality goes above that standard in Santa Clara County.
- Recycled water is very safe and it has been used for centuries.
- Recycled water has been used for irrigation in a municipal setting (parks, schools, golf courses) and there has never been a reported instance of a public health problem from using this recycled water.
- The District is planning advanced treatment projects (i.e., reverse osmosis and UV treatment) as a way to reduce salts in recycled water, increasing potential for recycled water use.

Why is Recycled Water Important to Santa Clara County?

- Recycled water is a drought-proof or all-weather supply, almost immune from global climate change and drought.
- Use of recycled water for irrigation or industrial uses saves potable supplies for drinking purposes.
- Helps preserve our saltwater and tidal habitat by reducing freshwater discharge to the San Francisco Bay.
- Provides a reliable source of water to the community and private entities that protects their investments in parks and landscaping (i.e., this water will be available even during times of drought).
- A green and healthy environment enhances the quality of life in this county.

Recycled water is highly treated wastewater that is purified through multiple levels of treatment. Wastewater is water that has been used in homes and businesses that goes into underground pipes that carry it to a wastewater treatment plant.

In Santa Clara County, there are four wastewater treatment plants that rigorously treat wastewater to remove pollutants before the treated water is discharged into the San Francisco Bay or stored in evaporation ponds. Some of this treated water is further filtered and highly disinfected to become recycled water that can be put to many beneficial uses, as allowed by the stringent state standards. Some of these uses are for landscape irrigation, for non-potable plumbing uses, cooling tower uses, other industrial uses, dust-suppression during construction as well as other uses.

DISTRICT'S POLICY & PLANNING LEADERSHIP IN WATER RECYCLING & DESALINATION

To ensure that the mission of the District is realized, the Board of Directors has established organizational outcomes, or Ends Policies, to be achieved by the GM and staff. Ends Policies describe the specific outcomes to be achieved, starting with general statements followed by specific descriptions.

The governing Board of this District adopted the following policies that guide recycled water activities at the District:

2.1.4. There are a variety of water supply sources.

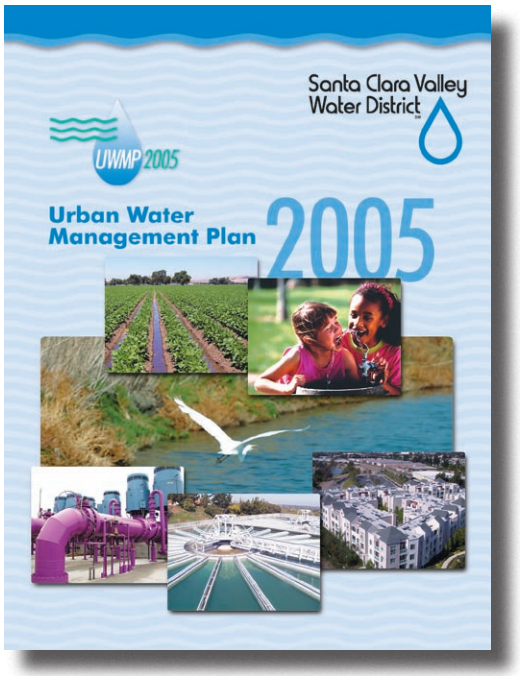
2.1.4.1. The District's variety of water supply sources is protected.

2.1.4.2. The District's water supply sources are further diversified by making new investments in a mix of all-weather supplies, storage, and dry year transfers or option agreements.

2.1.7. Water recycling is expanded within Santa Clara County in partnership with the community, consistent with the District's Integrated Water Resources Plan (IWRP), reflecting its comparative cost assessments and other Board policies.

2.1.7.1. Target 2010, water recycling accounts for five percent of total water use in Santa Clara County.

2.1.7.2. Target 2020, water recycling accounts for ten percent of total water use in Santa Clara County.



The District's Urban Water Management Plan.

The District's 2003 update to the Integrated Water Resources Planning Study and the 2005 Urban Water Management Plan identified water recycling and desalination, along with water conservation, as key components in meeting future dry year shortfalls.

The 2005 Urban Water Management Plan specifically states that, "the difference shown between recycled water projection and the District target in 2010 and 2020 will potentially be achieved by additional investments in recycled water projects including advanced treatment of recycled water, groundwater recharge and streamflow augmentation."

The 2005 Urban Water Management Plan's projection for recycled water in the year 2010 is almost 17,000 acre-feet. This represents a shortfall of approximately 2,500 acre-feet from the Board's 5 percent target for 2010. Similarly, the 2020 projection estimates that, at the current levels of effort, recycled water expansion in 2020 will only be 25,000 acre-feet, which is an almost 15,000 acre-feet shortfall from the Board's 10 percent target of 40,000 acre-feet. However, if recycled water use is to reach Board targets, a significant investment in recycled water expansion projects will need to be made.

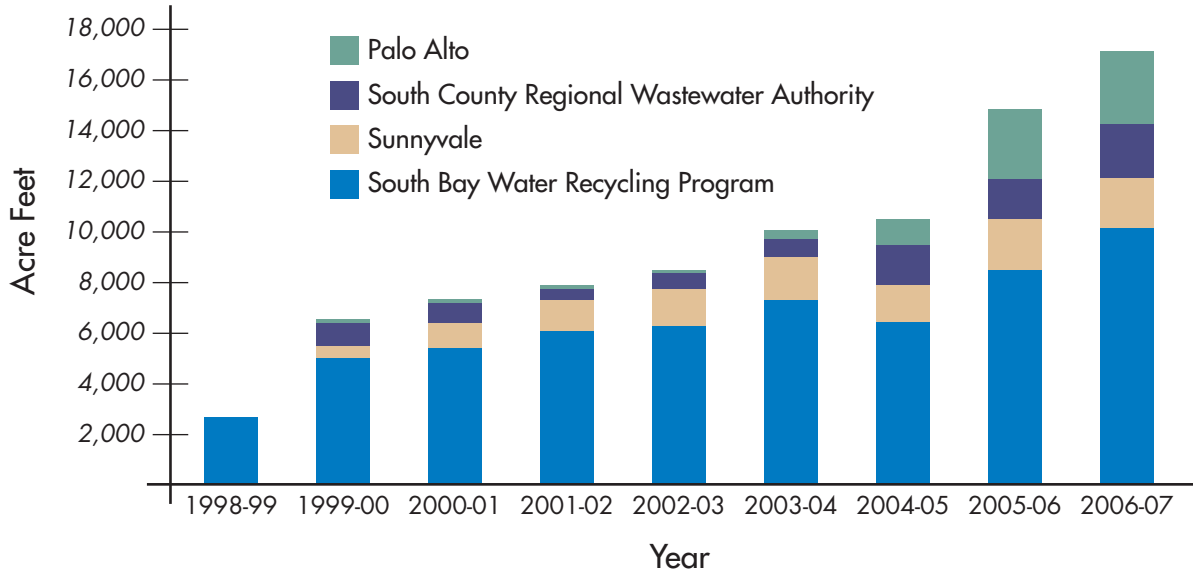
The District sees desalination as another potential and viable way to diversify its water supply portfolio and increase supply reliability. The 2003 Integrated Water Resources Planning Study identified two preliminary objectives for desalination: augmentation of the District's current water resources, and creation of greater drought or emergency reliability by serving as a consistent, supplemental water supply source.

Water Recycling & Desalination: CURRENT ACHIEVEMENTS

District Advisory Committee touring the reverse osmosis pilot plant. Pilot plant demonstration explained by Ray Wong (in yellow hardhat).

COUNTYWIDE RECYCLED WATER USED (IN ACRE FEET)

Fiscal Year	*SBWRP*	*Sunnyvale*	*SCRWA*	*Palo Alto*	*Total*
1998-1999	2,357	0	0	0	**2,357**
1999-2000	5,002	439	896	63	**6,401**
2000-2001	5,409	944	708	63	**7,124**
2001-2002	6,037	1,210	487	66	**7,800**
2002-2003	6,177	1,602	536	66	**8,381**
2003-2004	7,245	1,816	619	200	**9,880**
2004-2005	6,320	1,786	1,616	1,009	**10,731**
2005-2006	8,582	1,994	1,671	2,738	**14,985**
2006-2007	10,100	2,078	2,035	2,765	**16,978**

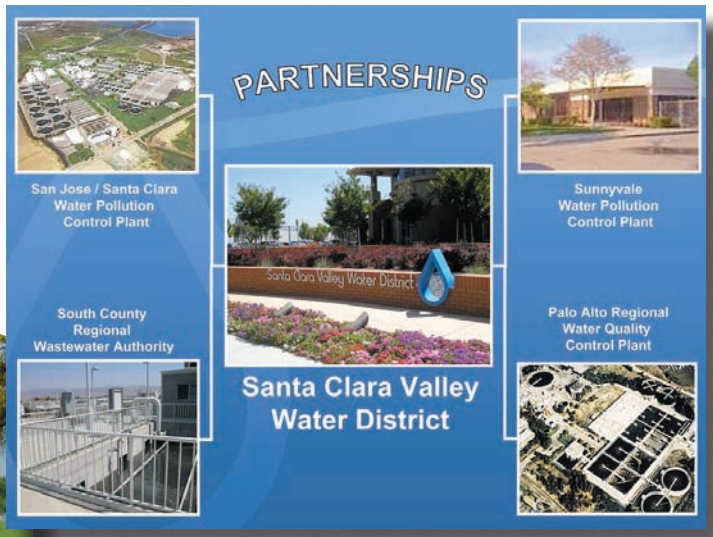


Water Recycling & Desalination: DISTRICT'S PARTNERSHIPS

Bay Area Regional Desalination Open House held on October 11, 2006 at the District's headquarters

The District's approach to recycled water expansion is to develop partnerships with the cities and publicly owned agencies that produce and/or distribute recycled water. The District has entered into recycling partnerships with all four recycled water producers in Santa Clara County: the South Bay Water Recycling Program (SBWR) operating out of the San Jose/Santa Clara Water Pollution Control Plant, the Sunnyvale Water Pollution Control Plant (Sunnyvale WPCP) , the Palo Alto Regional Water Quality Control Plant, and the South County Regional Wastewater Authority (SCRWA) in Gilroy.

The District's partnerships on desalination include the San Francisco Bay Area Regional Desalination Project partnership with San Francisco Public Utilities Commission, East Bay Municipal Utilities District and Contra Costa Water District. The District's Brackish Water Partnership includes San Benito County Water District in a joint project on Brackish Water desalination in the Pajaro Valley Subbasin.



District partnerships with recycled water producers.

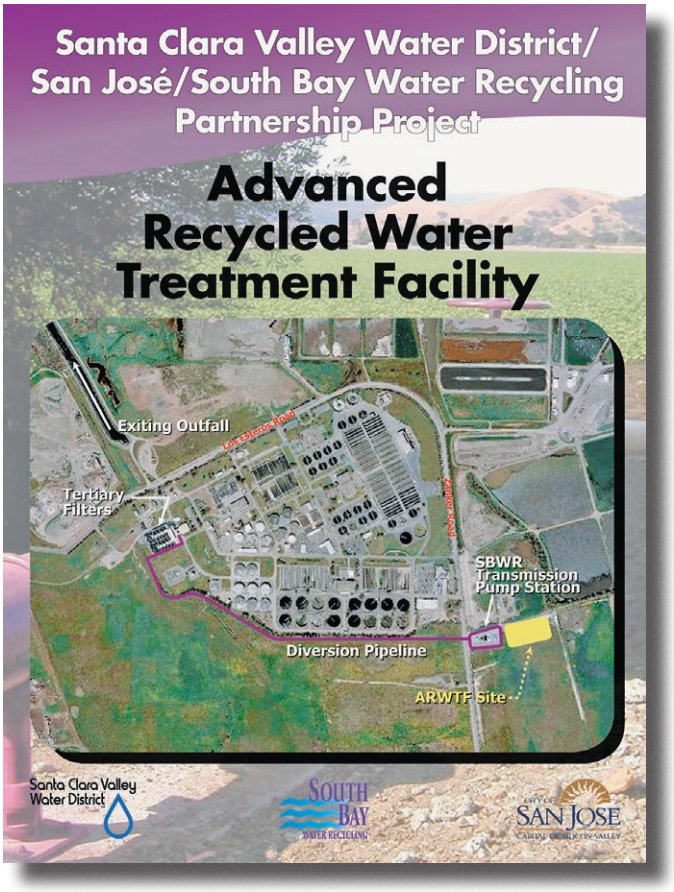
San Jose Municipal golf course uses recycled water.

SOUTH BAY WATER RECYCLING

The South Bay Water Recycling (SBWR) Program, administered by the City of San José, produces the majority of recycled water delivered within Santa Clara County.

The District has been working with the City of San José on its recycled water program since 1994, providing financial and technical support for system expansion, and acting as a liaison with water retailers. In addition, the District has provided financial incentives since 1995 for recycled water used to displace potable water. The partnership between the District and the City of San José provides for distribution of recycled water within the cities of San José, Santa Clara and Milpitas. In FY 06/07, the District provided almost $1 million in financial incentives to the South Bay Water Recycling for recycled water used to offset the demand for District potable water supplies.

In January 2002, the San José City Council and District Board of Directors agreed to develop an institutional framework for the ownership, operation, maintenance and expansion of South Bay Water Recycling that most effectively meets the needs of the community. This collaborative effort defines the relationship between the District and the SBWR Program, and helps meet the water supply and wastewater discharge needs of the South Bay community.



An advanced treatment recycled water facility jointly developed by the District and San Jose is in the future construction planning and design stages.

The City and District have conducted a number of recycled water quality projects; jointly, individually, and also in partnership with other agencies and entities. Beginning in 2005, the District and City jointly applied for grant funding for constructing a five million gallon per day (MGD) Advanced Recycled Water Treatment Facility (AWT). On September 26, 2006, the District Board authorized execution of a consultant agreement with Black & Veatch for just under $2.78 million to provide engineering services leading to construction documents for the five MGD South Bay facility.

Subsequently, the agencies mutually agreed to increase this proposed facility from 5 MGD to 8 MGD in order to meet projected 2015 demands on the facility. The District and City also received successful news of a state grant (Proposition 50) in the amount of just under $3 million towards AWT. Both agencies are also jointly pursuing federal grants (potentially $8.25 million) for construction funding towards this AWT facility. The current information is that a federal bill holding authorization for funding for this AWT facility recently passed the U.S. House of Representatives. An identical bill has been introduced in the U.S. Senate. This bill is expected to pass this congressional session.

Fiscal year 2008 is expected to be a critical year for the partnership between the District and the City as both agencies will actively explore an equal partnership in the South Bay Water Recycling Program, in order to play a larger role in integrating recycled water into the District water supply management portfolio.

Recycled water used at Greer Park in Palo Alto.

Recycled water used in a duck pond in Palo Alto.

PALO ALTO WATER QUALITY CONTROL PLANT

The Palo Alto Regional Water Quality Control Plant (RWQCP) serves Palo Alto, Mountain View, Los Altos, Los Altos Hills, Stanford University and the East Palo Alto Sanitary District. The RWQCP also provided recycled water for a local wetland that was only made possible by recycled water.

In 2005, RWQCP completed the planning phase of its Palo Alto/ Mountain View Pipeline Extension with the goal of replacing the existing pipeline to the Shoreline Golf Course and extending the pipeline to the Mountain View-Moffett area east of Highway 101. The proposed pipeline would follow the levees along Matadero Creek, and will be located adjacent to East Bayshore towards Mountain View. The pipeline replacement helps fulfill RWQCP permit requirements.
The RWQCP is required to operate and maintain the Water Reuse Program to mitigate the discharge of treated wastewater to San Francisco Bay.

Engineering and design of this project started in summer 2005, and construction began in summer 2007. The project cost will be shared between the RWQCP and the cities of Palo Alto and Mountain View and will receive up to $4 million in state Proposition 50, Chapter 7 grants. The construction cost of this project is approximately $16 million. The project sponsors have also applied for other state and federal grants to offset this cost.

SUPPORT FOR SUNNYVALE'S RECYCLED WATER PROGRAM

This year, the City of Sunnyvale has experienced a slight increase in recycled water consumption. The District has provided a financial incentive to the City of Sunnyvale's water recycling program since 1997 at the rate of $115 per acre-foot of recycled water used to offset potable water. The reimbursement by the District helps the City offset the deficit between revenues and expenses, and enables the City to make additional capital improvements to increase system reliability and expand system capacity. The District and City of Sunnyvale executed a two-year extension, which expired on June 30, 2007. The District and City have on-going bi-monthly meetings to discuss other forms of partnership that will assist in the expansion of recycled water.

The Sunnyvale Water Pollution Control Plant (WPCP) plans to expand its water recycling systems in order to meet state and federal discharge requirements. Staff from the City and the District have had discussions on developing a long-term comprehensive operating strategy and on near-term recycled water expansion opportunities including services to Moffett Field Golf Course.

DISTRICT TAKES ON A DIFFERENT ROLE FOR RECYCLED WATER IN SOUTH COUNTY

In south Santa Clara County, the District is a wholesaler of recycled water. The South County Regional Wastewater Authority (SCRWA) produces recycled water and the City of Gilroy is the retailer. The District, Gilroy and SCRWA have producer–wholesaler–retailer agreements in place delineating their respective roles and responsibilities. This differs from the north part of the county, where the District is not a producer/wholesaler/retailer. The District takes on partnership roles and enters into agreements for joint pipeline construction projects, or joint water quality studies that all lead toward the goal of expanding recycled water used in the county.

In 1977, the Santa Clara Valley Water District, the City of Gilroy and the Gavilan Water Conservation District (which merged with the District in 1989) entered into a partnership to construct and operate a recycled water system extending from the SCRWA treatment plant southeast of Gilroy to several customers along Hecker Pass Road. The system operated sporadically for about 20 years.

In 1999, the District and the SCRWA entered into a Producer and Wholesaler Agreement to take tertiary treated water from the wastewater treatment plant and sell it to local users, including farmers, parks and golf courses. The agreement states that the District owns and operates

The Gilroy Sports Park is irrigated with recycled water, due to the efforts of SCRWA, the City of Gilroy and the District.

the distribution facilities up to the point of connection with the SCRWA treatment plant. The agreement requires the District to execute the first phase of capital improvement projects to upgrade the existing distribution facilities to a more reliable, modern recycled-water system.

In summer 2002, a new 3 MGD booster pump station in Christmas Hill Park and a 1.5 million gallon reservoir above Eagle Ridge Golf Course commenced operation. The District and SCRWA agreed to work together to create and approve a Master Plan for the design and construction of facilities for the distribution of recycled water in the SCRWA service area. This producer–wholesaler agreement was re-vamped and approved by the governing boards of both the District and SCRWA in FY 06-07.

SOUTH COUNTY RECYCLED WATER MASTER PLAN

The District and SCRWA jointly completed the South County Recycled Water Master Plan in 2004. The Master Plan defines immediate-, short-, and long-term capital improvement programs.

In 2006, the District implemented the immediate-term capital improvement program. The program included the construction of 4,800 feet of 20-inch pipelines, a 3 MGD reservoir. The cost of this program was approximately $3.3 million. Twenty-five percent of the cost was reimbursed by a grant from the State Water Resources Control Board. SCRWA also expanded the tertiary filtration capacity by installing an additional 3 MGD filter bank and additional pumping capacity.

The improvements intended to improve the reliability of the system and also accommodate additional customers. From 2006 to 2007, new customers included the Gilroy Sports Park, the Gilroy Golf Course, and the expanded use of the agricultural user. The annual recycled water delivery in fiscal year 2007 increased to 2,035 acre-feet from 1,671 acre-feet from the same period last year.

The District will continue to work with SCRWA on the South Pipeline Project – a discharge pipeline for wastewater management purpose, to install turnouts along the pipeline to deliver recycled water for additional agricultural irrigations. SCRWA also is currently implementing the ultra-violet light disinfection to improve the recycled water quality.

The District is currently partnered with various Bay Area agencies and the office of Congressman George Miller seeking $7 million in federal financial assistance to implement the short- and long-term phases of the South County Recycled Water Master Plan.

BAY AREA REGIONAL DESALINATION PROJECT

The District is working on desalination projects to:

- Provide replacement sources of water during emergencies such as earthquakes
- Provide a supplemental supply source during extended drought periods
- Allow other major facilities, such as treatment plants, transmission mains and pump stations, to be taken out of service for an extended period of time for maintenance or repairs
- Increase the diversity of the agencies' water supply portfolio by providing a full-time supplemental water supply, which would increase reliability

CONTRA COSTA WATER DISTRICT

EBMUD

Santa Clara Valley Water District

SFPUC

SAN FRANCISCO Public Utilities Commission

The Bay Area's four largest water agencies, the Contra Costa Water District, the East Bay Municipal Utility District, the San Francisco Public Utilities Commission, and the Santa Clara Valley Water District, are jointly exploring the development of regional desalination facilities that would benefit over 5.4 million Bay Area residents and businesses served by these agencies. The Bay Area Regional Desalination Project could consist of one or more desalination facilities, with an ultimate total capacity of up to 71 million gallons per day.

Water Recycling & Desalination: EDUCATION & OUTREACH

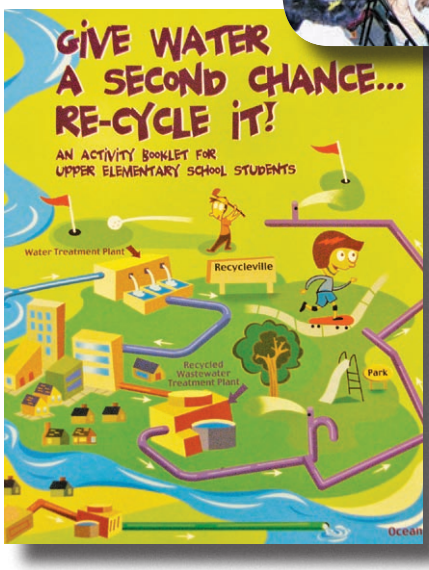
District Board member Patrick Kwok (second from right) receiving 2007 WateReuse Award for Public Education Program of the Year on behalf of the District. He is flanked by Hossein Ashktorab (right) and Greg Zlotnick (left), and Pick Talley, Director of Utilities for Pinellas County in Florida (2nd from left).

The District was notified that it is one of the two winners nationwide for the WateReuse 2007 Public Education Program of the Year Award. The District's application for the award focused on the District's water awareness and water recycling outreach program. This multi-pronged program focused on educating and informing the public on the value of water and water recycling.

The award application summarized how the District is continuously working on educating school children and youth and the community about re-using water. These young people will know the beneficial use of recycled water and water use efficiency and will share that knowledge with their parents. The application highlighted the sheer numbers of schoolchildren reached by this District's very strong school outreach program, the feedback from teachers, and the curriculum and supplemental materials distributed to classes in Santa Clara County by the District, including WateReuse's publication "Give Water a Second Chance… Recycle It!"

The Public Education award was presented to the District at WateReuse's Annual Conference in Tampa, Florida on September 10, 2007. The award recognizes the District's exceptional investment of time and resources towards the goal of educating the people of Santa Clara County of the value and the benefits of recycled water.

District outreach staff teaching water use efficiency to local school kids.



Water Recycling booklet produced by the WateReuse Association, distributed by the District to over 2,000 students in FY 06/07.

Some of the ways the District conducted public education on recycled water included:

- A table top display used at public events depicting how tertiary-treated recycled water is produced, which explained how the technology used and the rigorous monitoring makes recycled water really safe.
- A brochure and pamphlet produced and distributed by the District to the public at events to explain the safety and benefits of recycled water.
- Media outreach via press releases by the District when new recycled water facilities come on-line; for example the recent South County's recycled water distribution pipelines at the Gilroy Sports Park.
- The District's lead in hosting the bi-monthly water recycling retailers' subcommittee meetings to meet, discuss and resolve issues pertaining to the expansion of recycled water.
- The District's water recycling information on the District's external website explaining the benefits of recycled water to the community.
- The District's own outreach within the District's organization, for example a panel discussion on recycled water quality, regulatory issues and potential future uses; increased internal staff's understanding of recycled water.

Open house for the Regional Desalination Project

NETWORKING WITH CITIES AND WASTEWATER TREATMENT PLANTS

The District networks with area cities and wastewater treatment plants to ensure the costs of future water supply and sewage treatment are contained to provide the most efficient use of resources for the community. The District also provides staff support for its Water Retailers Recycling Subcommittee, Agricultural Water Advisory Committee and Landscape Advisory Committee. Staff members also track technical and regulatory developments that affect the production and use of recycled water, and participate in statewide recycling organizations and activities.

Water Recycling & Desalination: GRANTS & COST SHARING AGREEMENTS

Ray Wong examines reverse osmosis treatment pilot plant.

The District's WUE program completed or continued to conduct many different projects using various grant funding sources. These projects include:

- Water Softener Replacement Rebate Program (full scale): After the successful pilot program, the District and San Benito County Water District jointly applied and were awarded a grant of $300,000 from DWR to further the replacement of old, inefficient water softeners
- Impact Evaluation of Streamflow Augmentation with Tertiary Recycled Water: DWR grant for $300,000 through MWD
- Brackish Groundwater Desalination Feasibility Study: Proposition 50 grant for $250,000
- Bay Area Regional Desalination Project: Proposition 50 grant (for feasibility phase) for $250,000
- Bay Area Regional Desalination Project: Proposition 50 grant (for pilot phase) for $950,000
- South County Immediate-Term Construction Project: Proposition 50 grant for $825,000

Efficient water softener

Sample site for streamflow augmentation studies

Grant-funded Feasibility Study Report for the Bay Area Regional Desalination Project

Water Recycling & Desalination: STUDIES & RESEARCH

Alice Ringer collecting water samples.

District governance policies call for the expansion of water recycling in Santa Clara County, while at the same time ensuring that groundwater basins are protected from threats of contamination. To fulfill these goals, the District is working to identify new markets and uses for recycled water, while also conducting research to evaluate the effects that existing and planned recycled water projects may have on groundwater quality. Although recycled water is currently used for large landscape irrigation, agriculture, and some industrial processes, it may also have uses for environmental purposes, such as enhancing stream flows, reservoirs and wetlands. Advanced treated recycled water is under consideration for future groundwater recharge. Expanding recycled water applications will require increased monitoring of soil and groundwater quality, as well as advanced levels of treatment depending on where and how recycled water is used.

Research will also investigate treatment methods to expand water recycling options and protect groundwater. Current research studies and recently completed studies are described below.

BAY AREA REGIONAL DESALINATION PROJECT

The four largest San Francisco Bay Area water suppliers (SCVWD, EBMUD, SFPUC, CCWD) have established a partnership to evaluate the feasibility of a regional desalination plant to provide water for 5.4 million residents to meet water supply reliability and emergency needs. The joint venture began in 2003, and the partnership completed the pre-feasibility work. The study participants were recent joint recipients of $249,950 Proposition 50 funds to conduct an approximately $500,000 feasibility study. The four agencies will also receive almost $1 million towards the next pilot phase of this project.

PAJARO WATERSHED BRACKISH GROUNDWATER DESALINATION FEASIBILITY STUDY

The District and San Benito County Water District are the joint recipients of $245,000 in Proposition 50 grants to conduct a $490,000 brackish water feasibility study in the Pajaro River basin. Pilot testing in Pajaro as well as feasibility evaluations were conducted in FY 06-07.

San Benito County reverse osmosis pilot testing.

PALO ALTO/MOUNTAIN VIEW SOLUTIONS PROJECT

This project is evaluating the limits to the sustainable use of recycled water for landscape irrigation. Soils from Mountain View and from throughout the county are being tested at UC Davis against waters varying in sodium and total salt concentration to determine the effects of recycled water on soil structure.

The project has also engaged researchers in the horticulture department at UC Davis to determine the sodium, chloride and salinity tolerances of the Coast redwoods. When the investigatory part of the project is complete, the District will formulate site-specific, best management practices for recycled water use in Santa Clara County.

Redwood trees irrigated with recycled water.

THE FEASIBILITY OF BRACKISH GROUNDWATER REUSE

This project will investigate the feasibility of implementing brackish groundwater reuse in Santa Clara County to supplement expected shortages in future supplies of potable water. It will have the potential to identify a new source of supply, and will demonstrate the technical and economic feasibility of treating brackish groundwater with state-of-the-art-technology to a quality suitable for beneficial uses. This is work with Stanford University using a grant from DWR.

IMPACT EVALUATION OF STREAMFLOW AUGMENTATION WITH TERTIARY RECYCLED WATER

This project will determine whether augmenting streamflow with recycled water is feasible within economic, environmental and countywide policy objectives for water supply management.

Collecting samples for groundwater monitoring

This project will evaluate the impact to the water quality of the stream, surface water and groundwater and will provide data that will help determine future plans or studies for streamflow augmentation. The District is working with Stanford University with funding from a DWR grant.

In FY 06/07, the District completed the public review process for the Mitigated Negative Declaration for CEQA Compliance. The District and Stanford University received a new joint grant from the WateReuse Foundation for additional tasks to study the attenuation of emerging contaminants in recycled water as part of this project. The project is expected to begin releasing recycled water into Upper Silver Creek in San Jose in summer/fall 2008.

STUDY OF GROUNDWATER IMPACTS FROM THE EXPANDED USE OF RECYCLED WATER FOR IRRIGATION

This study began in FY 06-07 and is jointly conducted by the Groundwater Management and the Water Use Efficiency Units. The study will conduct a year-long soil-column pilot study that evaluates the attenuation of a variety of water quality constituents through unsaturated and saturated soil columns packed with native soils and loaded with tertiary recycled water. The study will also map the groundwater impact sensitivity due to the use of recycled water throughout the Santa Clara County.

Santa Clara Valley Water District

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